

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



23 AUG 2005

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Applicant's or agent's file reference PC04002-LG	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/KR2004/000869	International filing date(day/month/year) 14 APRIL 2004 (14.04.2004)	Priority date (day/month/year) 16 APRIL 2003 (16.04.2003)
International Patent Classification (IPC) or national classification and IPC IPC7 C07C 253/04, C07C 67/22		
Applicant LG LIFE SCIENCES LTD. et al		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input checked="" type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>	

Date of submission of the demand 29 OCTOBER 2004 (29.10.2004)	Date of completion of this report 05 AUGUST 2005 (05.08.2005)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer KIM, YONG Telephone No. 82-42-481-8148 

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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:
 pages _____ as originally filed/furnished
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____

☐ the claims:
 pages _____ as originally filed/furnished
 pages* _____ as amended (together with any statement) under Article 19
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____

☐ the drawings:
 pages _____ as originally filed/furnished
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____

☐ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ neither restricted nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees:
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is :
- ☐ complied with.
 - ☒ not complied with for the following reasons:
 - 1. Claim 1: a process for preparing 4-chloro-3-hydroxybutyronitrile from epichlorohydrin and cyanide
 - 2. Claim 2: a process for preparing 4-chloro-3-hydroxybutanoic acid ester from 4-chloro-3-hydroxybutyronitrile
 - 3. Claim 3: a process for preparing 4-chloro-3-hydroxybutanoic acid ester from epichlorohydrin and cyanide
- Claims 1 and 2 are not so linked as to form a single general inventive concept because there exists no common special technical feature between the two claims.
4. Consequently, this report has been established in respect of the following parts of the international application :
- ☒ all parts.
 - ☐ the parts relating to claims Nos.

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1, 3, 4-8, 12	YES
	Claims	2, 9-11	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims	None	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: JP 5-310671 A 22 NOVEMBER 1993

D2: J. Am. Chem. Soc., 1930, 52(8), 3167-3176

1. Novel and Inventive Step

1) Concerning Claims 1, 4-8, 12

Claims 1, 4-8 and 12 relate to a process for preparing 4-chloro-3-hydroxybutyronitrile from epichlorohydrin and cyanide. Compared with D1 which is cited in the application, the subject-matter of claim 1 is the same as that of D1 except the range of pH. It changes the pH range from pH 8-10(D1) to pH 7-8.

Such a change of the range can be considered inventive only when the changed range of pH presents unexpected effects or properties in relation to the range of the prior art. However, no such effects or properties are indicated in the application (see the examples 1 and 2 of the present invention and the example 1 of D1).

Accordingly, the subject-matter of claims 1, 4-8 and 12 can be considered to be novel under the PCT Article 33(2), but does not involve an inventive step under PCT Article 33(3).

2) Concerning Claims 2, 9-11

The subject-matter of claims 2, 9-11 relates to a process for preparing 4-chloro-3-hydroxybutanoic acid ester from reacting 4-chloro-3-hydroxybutyronitrile in an alcoholic solvent with hydrogen chloride, which is the same as the process of D1 (see pages 3168 and 3170).

Although it is disclosed in the description that the present invention uses the reduced amount of hydrogen chloride and the solvent, these features are not claimed.

Therefore, the subject-matter of claims 2, 9-11 is not novel under PCT Article 33(2).

(Continuation on Supplemental Box.)

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Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

	<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
E,	JP2004-182607	02.07.2004	29.11.2002	

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure

Date of non-written disclosure
(day/month/year)

Date of written disclosure
referring to non-written disclosure
(day/month/year)

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V

3) Concerning Claims 3-12

The subject-matter of claims 3-12 relates to a process for preparing 4-chloro-3-hydroxybutanoic acid ester from epichlorohydrin and cyanide, comprising the steps of claims 1 and 2.

As mentioned above, the processes of the claims 1 and 2 lack novelty or an inventive step. And it appears to be obvious for the skilled person in the art to combine D1 and D2 to arrive at claim 3.

Therefore, the subject-matter of claims 3-12 does not involve an inventive step under PCT Article 33(3).

2. Industrial Applicability

There is no reason for denying industrial applicability of this invention. Consequently, claims 1-12 appear to meet the requirement of PCT Article 33(4).